



Impact of current policies on future air quality and health outcomes in Delhi, India

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Abstract:

A key policy challenge in Indian megacities is to curb high concentrations of PM_{2.5} and mitigate associated adverse health impacts. Using the Greenhouse Gases and Air Pollution Interactions and Synergies (GAINS) model we carry out an integrated analysis of the air quality regulations across different sectors for the city of Delhi. Our findings show that PM_{2.5} concentrations for Delhi will not reach the recommended national ambient air quality standards (NAAQS) even by 2030 under the current policies scenario. Adopting advanced control technologies reduces PM_{2.5} concentrations by about 60% and all-cause mortality by half in 2030. Climate change mitigation policies significantly reduce greenhouse gases, but have a modest impact on reducing PM_{2.5} concentrations. Stringent policies to control the net flow of air pollution from trans-boundary sources will play a crucial role in reducing pollution levels in Delhi city. Achieving NAAQS requires a stringent policy portfolio that combines advanced control technologies with a switch to cleaner fuels and the control of trans-boundary pollution.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution

Air Pollution: Interaction with Temperature, Particulate Matter

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: India

Health Co-Benefit/Co-Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

Morbidity/Mortality

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Mitigation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction, Outcome Change Prediction

Resource Type:

format or standard characteristic of resource

Research Article

Socioeconomic Scenario: Other Socioeconomic Scenario

Other Socioeconomic Scenario: the reference energy scenario developed by the International Energy Agency (IEA) for the World Energy Outlook (WEO) 2011 as the base case; city-specific policies; advanced control technologies; 450 scenario (world energy outlook)

Timescale:

time period studied

Medium-Term (10-50 years)